

SIMPLE INTEREST

Interest (I):

$$I = \frac{P \times T \times R}{100} \quad (\text{or}) \quad P \times T \quad (\text{or}) \quad A - P$$

Accumulated Amount (A):

$$A = P(1 + Pt) \quad (\text{or}) \quad P \left(1 + \frac{TR}{100}\right) \quad (\text{or}) \quad P + I$$

When two factors are not given:

$$R = \frac{(A_2 - A_1) 100}{A_1 T_2 - A_2 T_1} \quad \& \quad P = \frac{A_1 T_2 - A_2 T_1}{T_2 - T_1}$$

$$T = \frac{(A_2 - A_1) 100}{A_1 R_2 - A_2 R_1} \quad \& \quad P = \frac{A_1 R_2 - A_2 R_1}{R_2 - R_1}$$

$$A_2 - A_1 = I_2 - I_1 = \frac{P \cdot T \cdot (R_2 - R_1)}{100} \quad (\text{or}) \quad P \quad (\text{or}) \quad T$$

COMPOUND INTEREST

$$A_n = P(1+i)^n$$

$$C.I = P[(1+i)^n - 1]$$

n = No. of conversion period.

⇒ If n is not a positive integer;

$$A = P(1+i)^n \left(1 + \frac{TR}{100}\right)$$

$$C.I = P \left[(1+i)^n \left(1 + \frac{TR}{100}\right) - 1 \right]$$

$$\Rightarrow C.I \text{ for } n^{\text{th}} \text{ period} = P \left[(1+i)^n - (1+i)^{n-1} \right]$$

Diff - Between C.I & S.I

One year = 0

Two years = pi^2

Three years = $P[i^3 + 3i^2]$

Four years = $P[i^4 + 4i^3 + 6i^2]$

⇒ Always try create a way to solve in own way (time less).

$$\text{Depreciation} = A = P(1-i)^n$$

FUTURE VALUE: Ordinary

$$= \frac{A}{i} [(1+i)^n - 1]$$

Present value: Ordinary

$$= \frac{A}{i} \left[1 - \frac{1}{(1+i)^n} \right]$$

JUST FV & PV \rightarrow * If it is

$$FV = P(1+i)^n$$

dep then '+' changes into '-'.

$$PV = \frac{A}{(1+i)^n}$$

In both FV & PV.

Effective Rate of Interest!

$$ie = (1+i)^n - 1 \quad \therefore \text{last may } \times 100$$

PERPETUAL ANNUITY!

→ NO future value

→ forever, every year, no fixed term (∞).

$$A \cdot \text{ordinary} = \frac{A}{i} ; A \cdot \text{Due} = \frac{A}{i} (1+i)$$

Growing perpetual annuity!

$$A \cdot O = \frac{A}{i-g} ; A \cdot D = \frac{A}{i-g} (1+i)$$

$$NPV = \frac{A}{(1+i)^1} + \frac{A}{(1+i)^2} + \frac{A}{(1+i)^3} \dots$$

$$C \cdot A \cdot G = (1+i)^n = \frac{A}{P} \quad (i \cdot \text{Malom karna}).$$

$$RRR = i = i_n - g\% ; A = P(1+i)^n$$